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# E85 Power Supply and Bus Systems

**Model: E85**

**Production: All**

## OBJECTIVES

After completion of this module you will be able to:

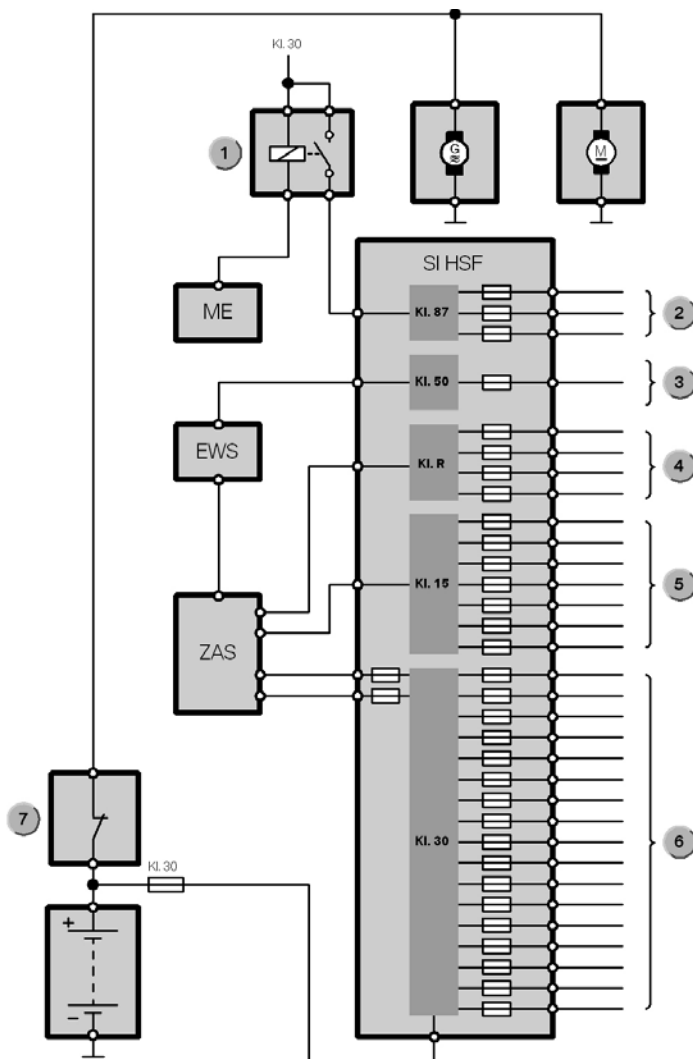
- Locate the Main power supply cable and fuses.
- Understand the construction of the B+ battery cable.
- Know the Bus System Layout.

# Purpose of the System

## Power Supply

The purpose of the Power Supply System is to safely deliver the required voltage and amperage to vehicle systems. The power supply system includes vehicle ground points and fuses. The power supply system includes the following components:

- Battery
- Monitored Battery B+ Cable (New System)
- Fuse Box
- Fuses
- Ground Points
- Alternator
- Jumper Cable Point



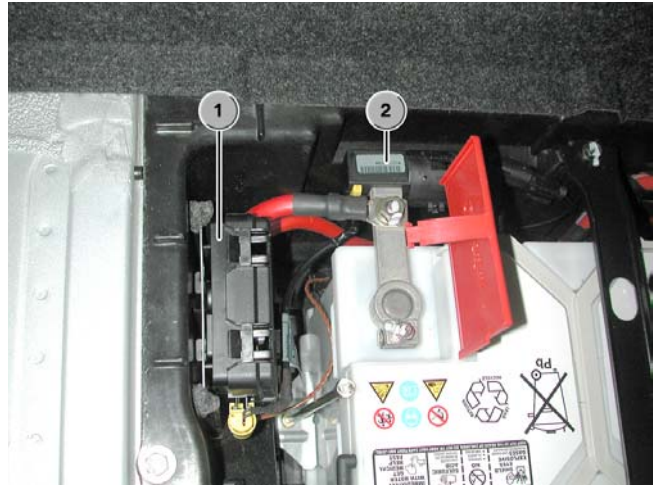
Index	Explanation
1	Main Relay
2	KL30
3	KL15
4	KLR
5	KL50
6	KL87
7	BST
G	Alternator
M	Starter Motor
ZAS	Ignition Switch
DME	Digital Motor Electronics (ECM)
EWS	Electronic Driveaway Protection
SI HSF	Fusebox (behind glovebox)

## System Components

### Battery

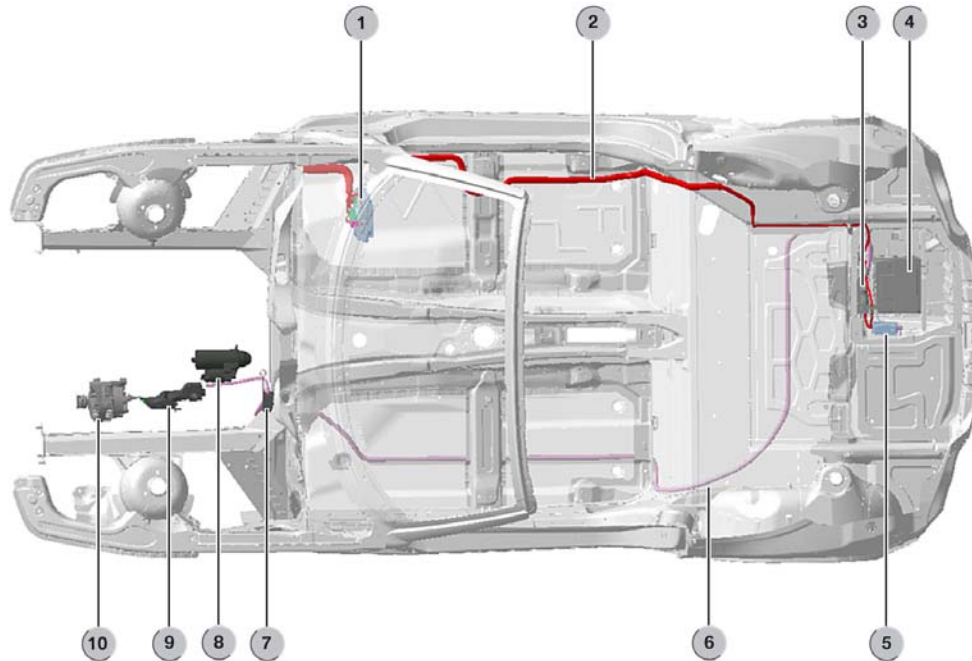
The Battery is located in the luggage compartment right hand side. Battery power is split with one leg routed through a 250 amp fuse to the main fuse box behind the glove box. The other circuit is sent through the BST and to the new monitored B+ cable that supplies power to the starter and alternator.

Depending on equipment on the vehicle either a 50AH, 70AH or 80AH battery is installed.



1. Rear fusebox with 250 Amp fuse
2. Monitored B+ cable with BST

### Battery Cable Routing

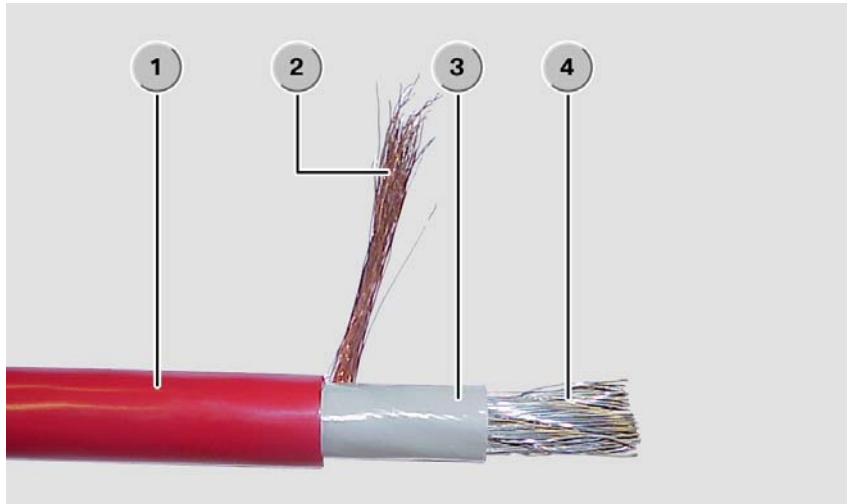


Index	Explanation	Index	Explanation
1	Passenger compartment fusebox	6	Monitored B+ Cable
2	B+ cable to passenger compartment fusebox	7	Jumper terminal under hood
3	Rear fusebox	8	Starter
4	Battery	9	B+ Cable connector
5	BST	10	Generator

## Monitored B+ Cable

The Monitored B+ Cable is a multi-strand aluminum cable with a cross section of 80mm<sup>2</sup>.

The aluminum cable is sheathed with an insulating layer and surrounded by a detecting shielded cable. An outer insulating sheath covers the entire assembly.



### Battery Cable Construction

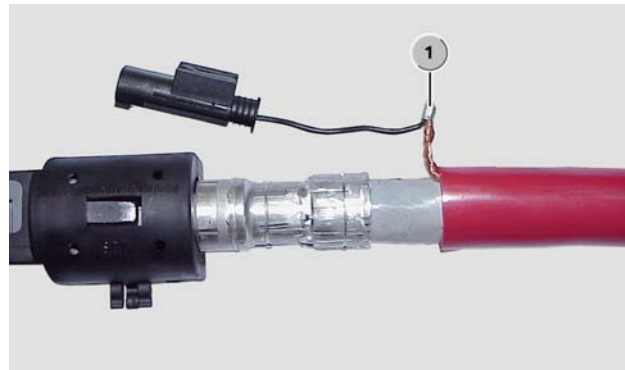
1. Outer insulation
2. Detecting Shield
3. Inner Insulation
4. Multi-Strand Aluminum Cable

The Monitored B+ cable is routed underneath the vehicle from the battery box along the floor pan to the engine compartment jumper cable point. The B+ cable is attached to the underside of the body with two different style clips. The cable is protected with plastic shielding. (Description of cable monitoring is found in Safety Systems.)



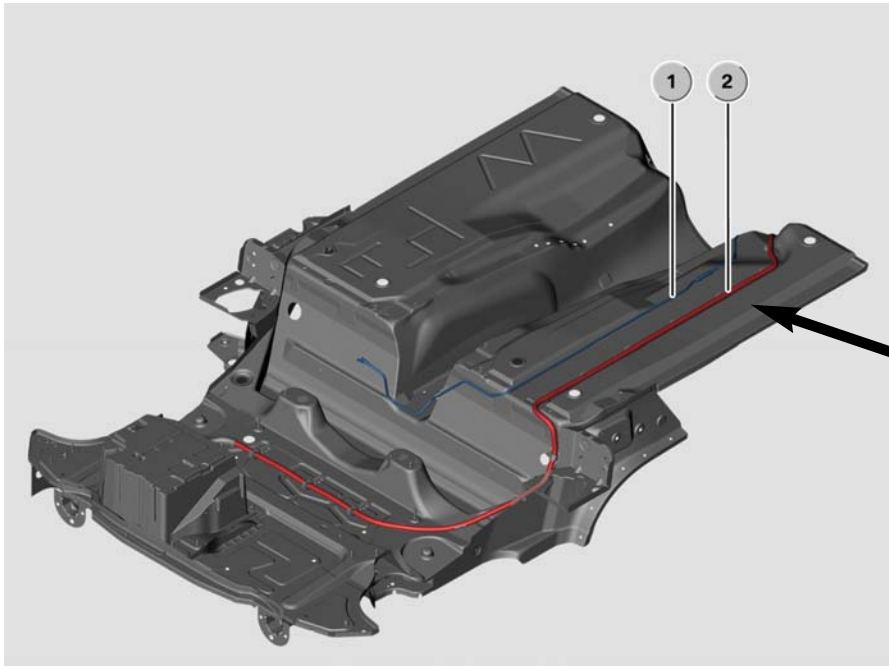
### Monitoring Connections

1. Connections for B+ cable monitoring
2. B+ Cable



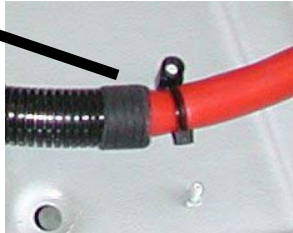
### Monitoring Connections

1. Connections for B+ cable monitoring
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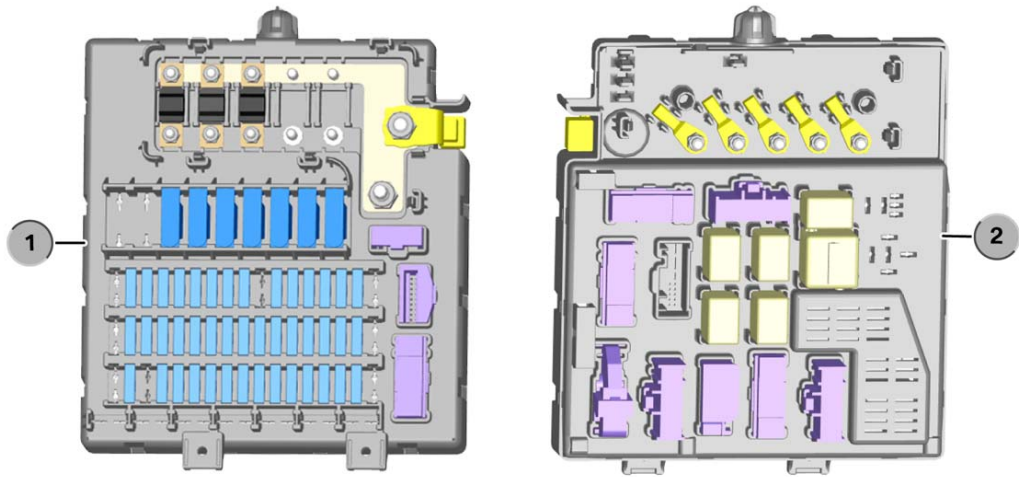
**B+ Cable Routing**

- 1. Fuel Line
- 2. B+ Battery Cable



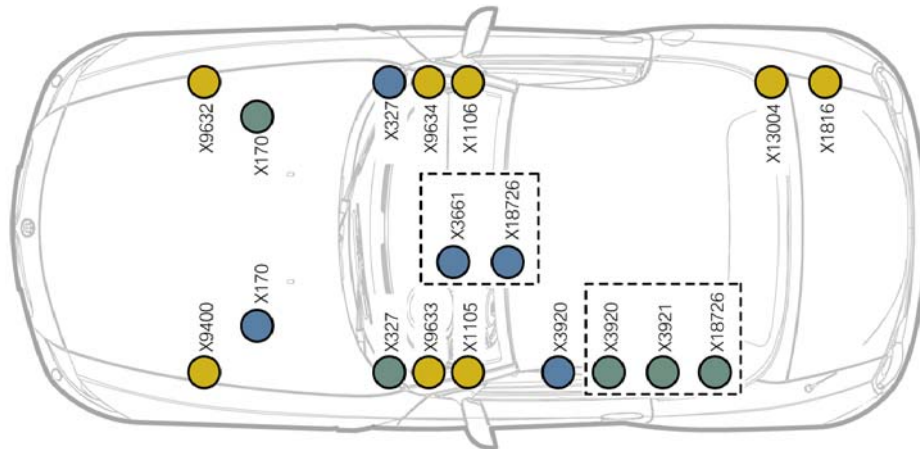
**Fuse Box and Fuses**

The Fuse Box is located behind the glove box and accessible by removing the glove box door and underdash panel. The fuse box contains blade type fuse and special fuses for higher amperage consumers. Relays are located on both the front and back sides of the fuse box.



Index	Explanation	Index	Explanation
1	Fusebox Front View	B	Not used at this time
2	Fusebox Rear View	C	DME (ECM) 80 Amp
A	Fuse- Engine Cooling Fan (60 Amp)	D	EPS (100 Amp)

## Ground Points



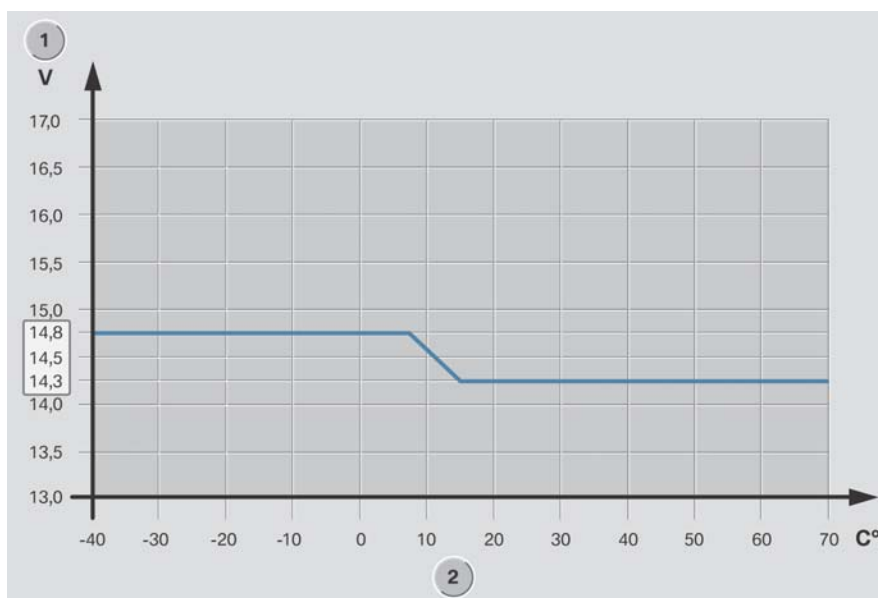
- Ground point in left and right hand drive vehicles
- Ground points in left hand drive vehicles
- Ground point in right hand drive vehicles

## Alternator

Depending on country and equipment the vehicle is equipped with different output alternators.

Battery charging voltage varies according to ambient temperature. At lower temperatures, the battery is less susceptible to boiling over and can be charged at higher voltages. At high temperature the charging voltage is reduced to prevent loss of the battery electrolyte through evaporation.

The DME controls the output rate of the alternator.



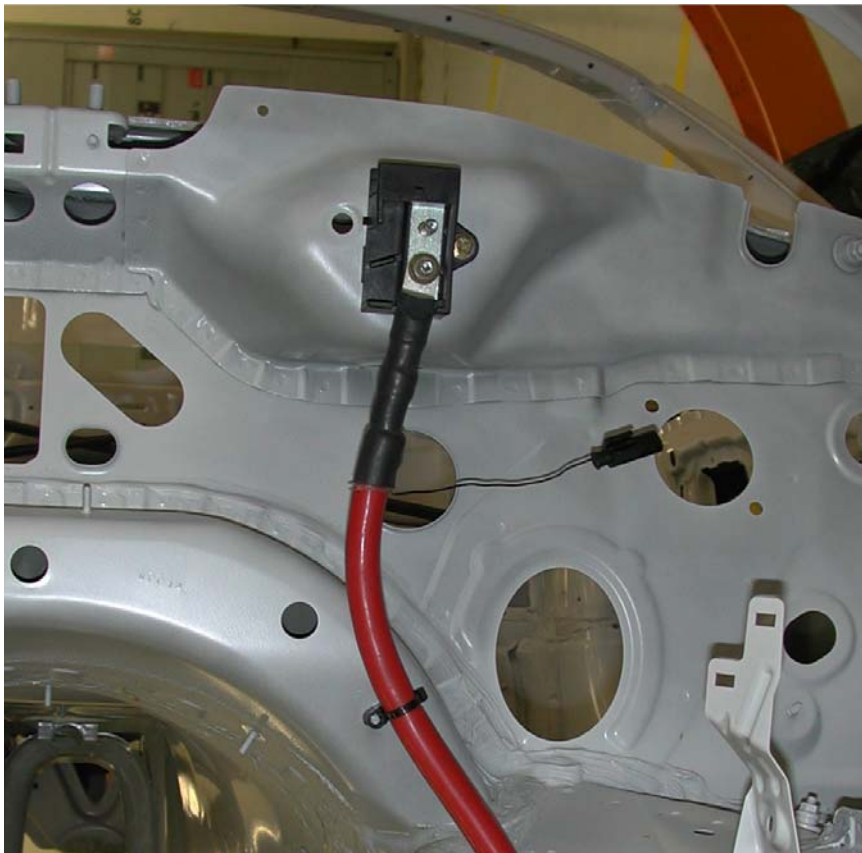


## Jumper Cable Point

The Jumper Cable Point is located in the engine compartment on the left side at the fire-wall. The jumper cable point is the junction for the Monitored B+ cable and the alternator and starter.



**B+ Jumper Point (under hood)**

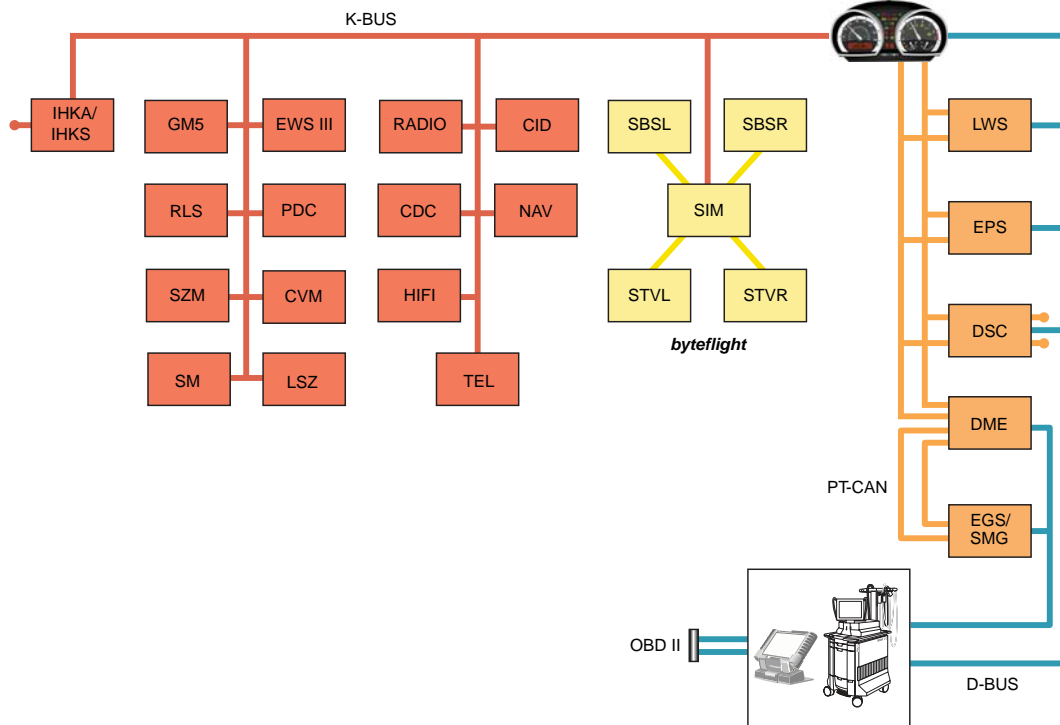


**Cable Routing on bulkhead**



## Bus Systems

The bus system of the E85 is based on the E46. The E85 uses the K-Bus, PT CAN and the D-Bus of the E46. These busses have been modified to accommodate additional components and systems. In addition to these bus systems, the byteflight bus has been carried over from the E65. The byteflight bus is a fiber optic bus used for the ASE system.



Index	Explanation	Index	Explanation
IHKA	Automatic Integrated Heating and A/C	SIM	Safety and Information Module
IHKS	Integrated Heating and A/C Control	SBSL	Satellite, b-pillar left
GM5	General Module V	SBSR	Satellite, b-pillar left
RLS	Rain and Light Sensor	STVL	Satellite, Door Left
SZM	Center Console Switch Center	STVR	Satellite, Door Right
SM	Seat Memory (module)	LWS	Steering Angle Sensor
EWSIII	Electronic Driveway Protection	EPS	Electric Power Steering
PDC	Park Distance Control	DSC	Dynamic Stability Control
CVM	Convertible Top Module	DME	Digital Motor Electronics (ECM)
LSZ	Light Switch Center	EGS	Electronic Transmission Control (TCM)
Radio	Radio	SMG	Sequential Manual Gearbox
CDC	CD Changer	IKE	Instrument Cluster Electronics
HiFi	Hi Fi Amplifier	PT-CAN	Powertrain CAN
CID	Central Information Display	D-Bus	Diagnosis Bus
NAV	Navigation Computer	K-Bus	Body Bus
TEL	Telematics Control Unit (also TCU)	OBD II	On Board Diagnostics